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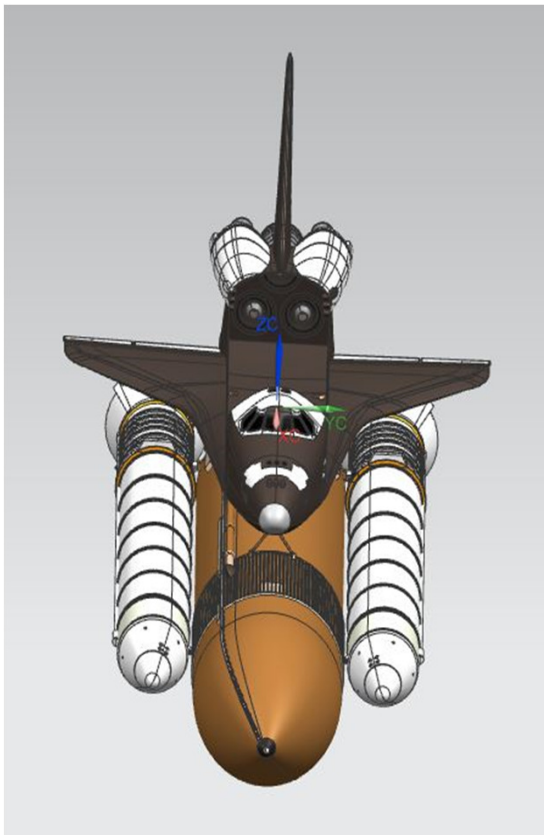
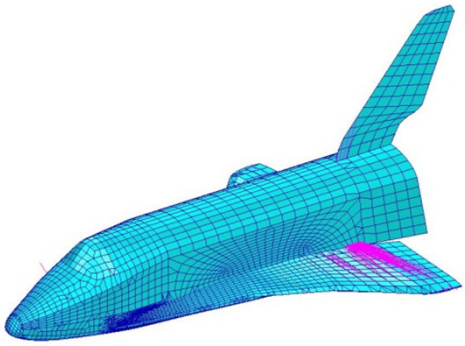
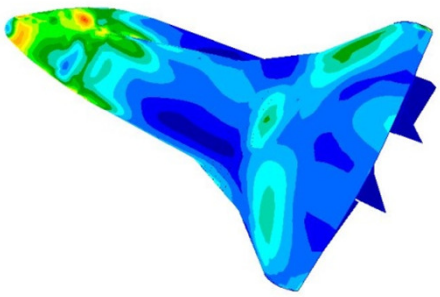
Mobile: +91 9008418527

An **ISO 9001-2008**
Pvt. Ltd. Company

# DSN AEROSPACE CONSULTANTS PVT. LTD.







**Major Activities**

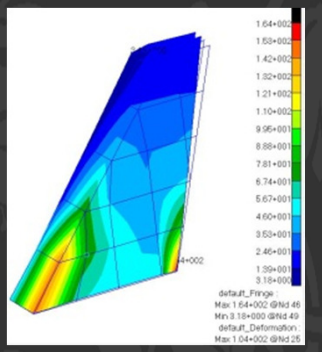
1. **Aerospace Training**
2. **Engineering Consultancy**
3. **Internships**
4. **Certificate Courses**
5. **Job Consultancy**

**www.dsnaerospace.com**
**CIN: U74900WB2013PTC198785**

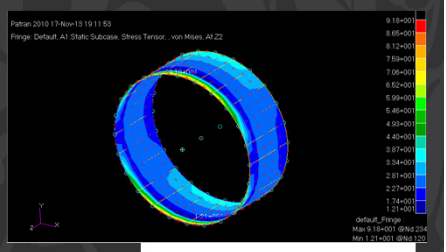
## ***3D Analysis Capabilities***

## ***Text books refered : Analysis and Design of Flight Vehicle Structure by Bruhn, Airframe Stress analysis and sizing by Michael Niu***

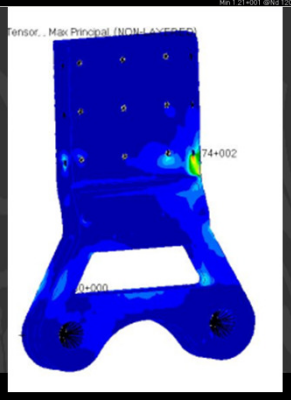
1. Hand calculation, analysis (Global and Local), sizing and Optimisation of ***Aircraft Wing and Empennage structure***.
   Software used : ***MSc Nastran and MSc Patran***.



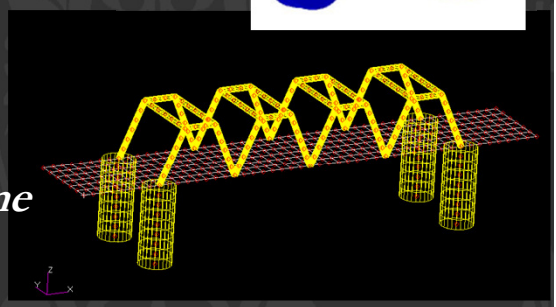
2. Hand calculation, analysis (Global and Local), sizing and Optimisation of ***Aircraft Fuselage structure.***
   Software used : ***MSc Nastran and MSc Patran***.



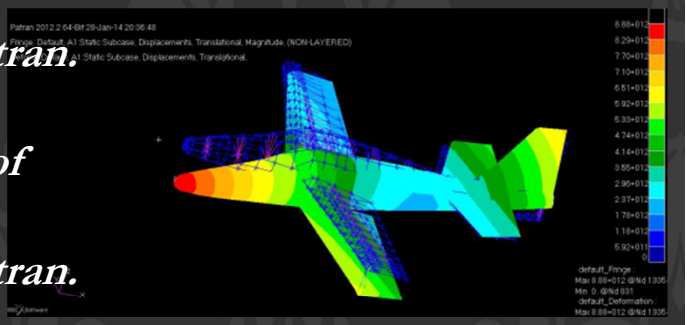
3. Hand calculation and analysis of ***Aircraft fittings and attachments*** (eg. Wing to Fuselage attachment, Empennage to Fuselage attachment etc.
   Software used : ***MSc Nastran and MSc Patran.***



4. Part level analysis of ***Mechanical Engineering Structure*** and creation of stress report with hand calculation.
   Software used : ***MSc Nastran and MSc Patran.***

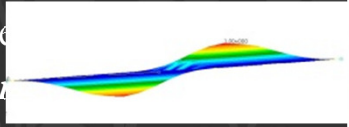


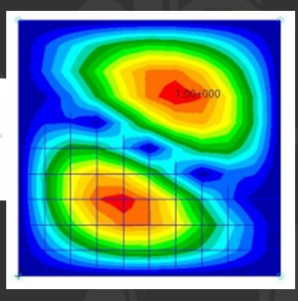
5. Application of ***Inertia Relief concepts to Airborne structures*** (for Aircrafts, Satellite, Missile and Launch Vehicles)
   Software used : ***MSc Nastran and MSc Patran.***



6. Hand calculation and analysis of ***Buckling of stiffened panel of Aircraft structure***.
   Software used : ***MSc Nastran and MSc Patran.***

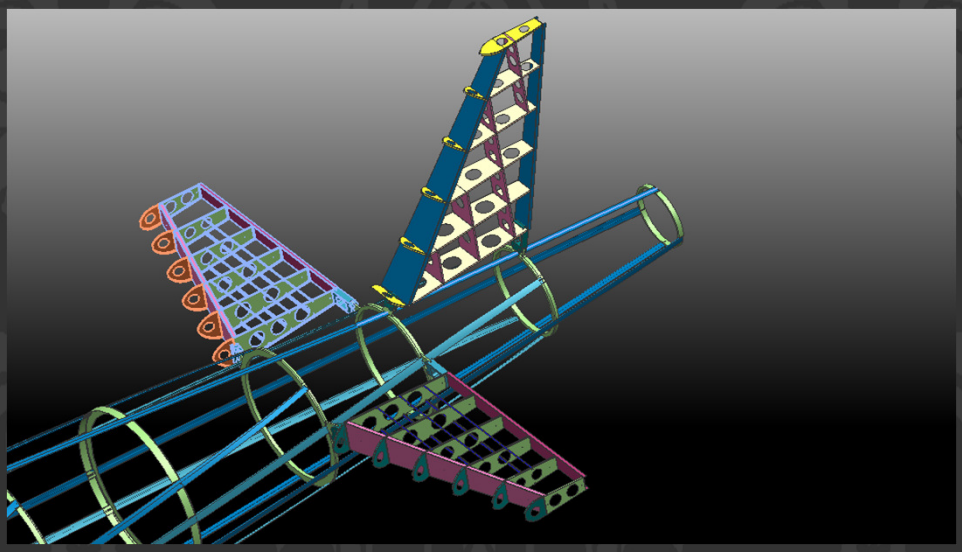
7. Global and part level analysis of ***Launch Vehicle structures*** (Rocket Interstage structure and stage attachme
   Software used : ***MSc Nastran and MSc Patra***



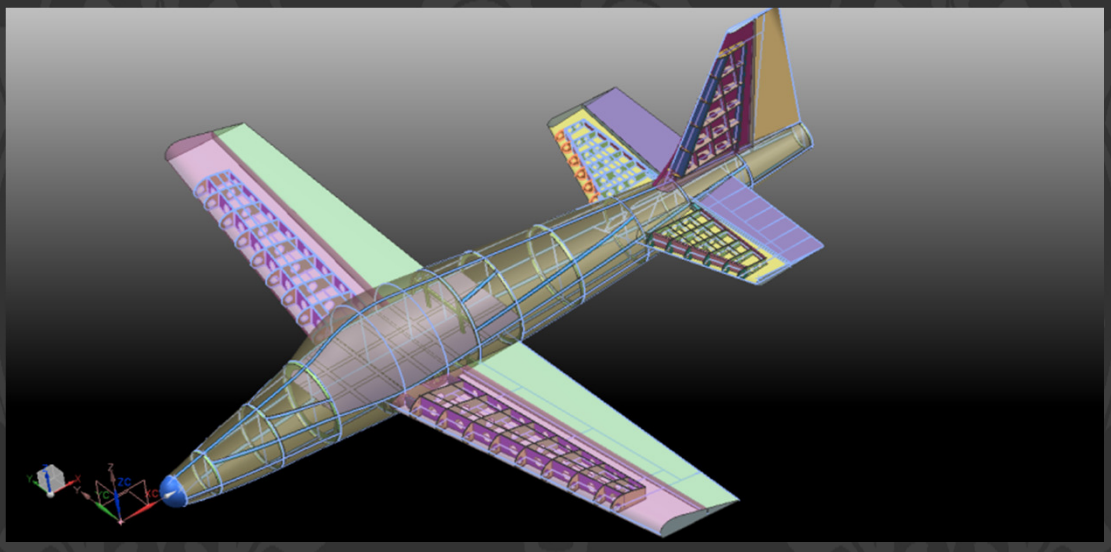


## ***3D modelling capabilities***

1. *3D modeling* of Aircraft parts (sheet metal and machined) based on initial sizing analysis.
   Software used : ***UG Nx 8.5 & Catia V5.***



2. *3D modeling* of Sub-assembly and Major assembly of Aircraft Wing, Empennage and Fuselage Structure.
   Software used : ***UG Nx 8.5 & Catia V5.***



3. *3D modeling* of mechanical structures pertaining to Launch Vehicle and Automobile components.
   Software used : ***UG Nx 8.5 & Catia V5.***

## ***2D drafting capabilities***

1. Preparation of *2D part drawing* of ***Aircraft Wing, Empennage and Fuselage parts.***
   Software used : ***UG Nx 8.5 and Catia V5.***

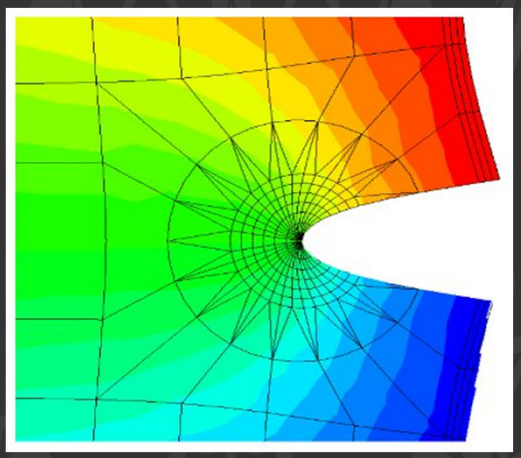
2. Preparation of *2D sub-assembly and major-assembly drawings* pertaining to ***Aircraft and Launch Vehicle structure.***
   Software used : ***UG Nx 8.5 and Catia V5.***

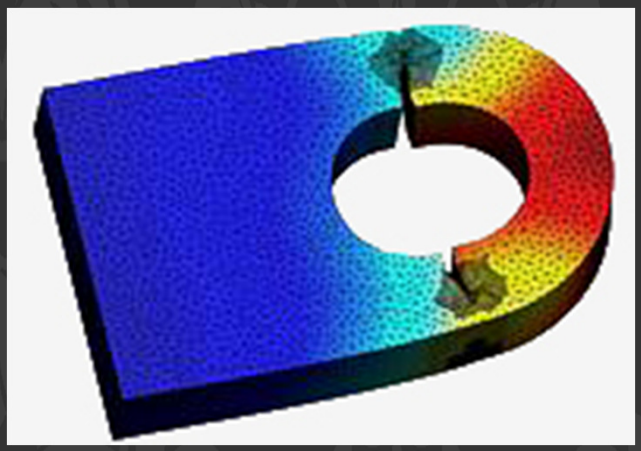
## ***Fatigue and Damage Tolerance capabilities***

1. ***Stress Life Method*** : Hand calculation of **S-N** based life estimation of structural parts using '***Microsoft XL***'. Estimation of Life of structural components using ***MSc Fatigue software***.


2. ***Strain Life*** **Method** : Hand calculation of **E-N** based life estimation of structural parts using '***Microsoft XL***'. Estimation of Life of structural components using ***MSc Fatigue software***.

3. ***Fracture Mechanics Method*** : Hand calculation of crack propagation life of structural members using '***Microsoft XL***'. Estimation of crack propagation life using ***MSc Fatigue software***.

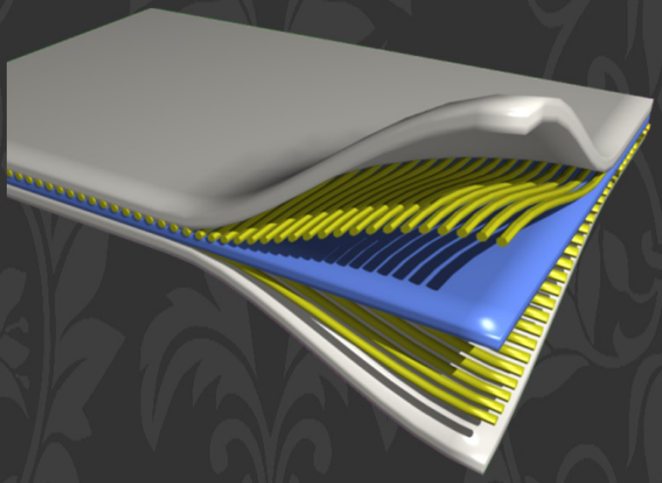




4. ***Fatigue and Damage tolerance analysis*** of Aerospace structure for variable amplitude loadings experienced during flight.

# ***Composite structure analysis capabilities***

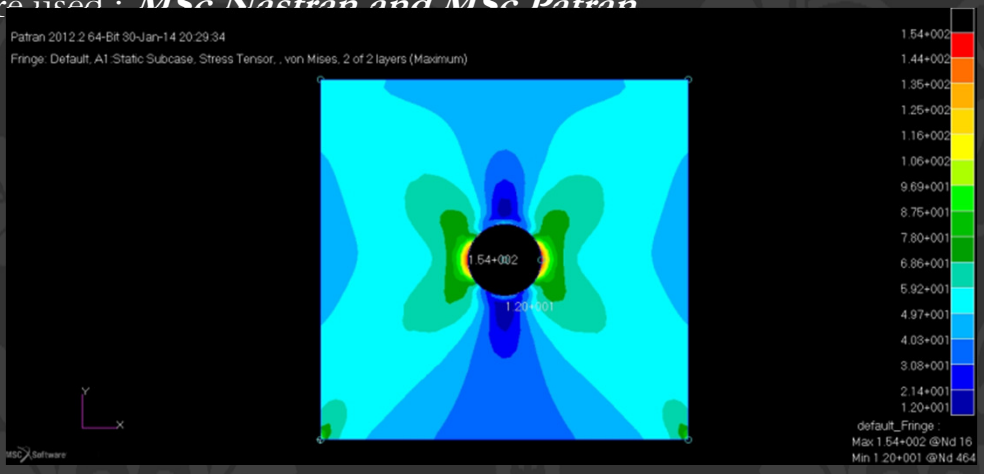
1. ***Theoretical approach to analysis of structural components made of composite material*** with hand calculation.



***Composite Fiber and Resin Matrix***


***Composite Fuselage of Boeing 787 Dreamliner***

2. ***Software based composite lamina build up*** and analysis of the same.
Software used : ***MSc Nastran and MSc Patran***



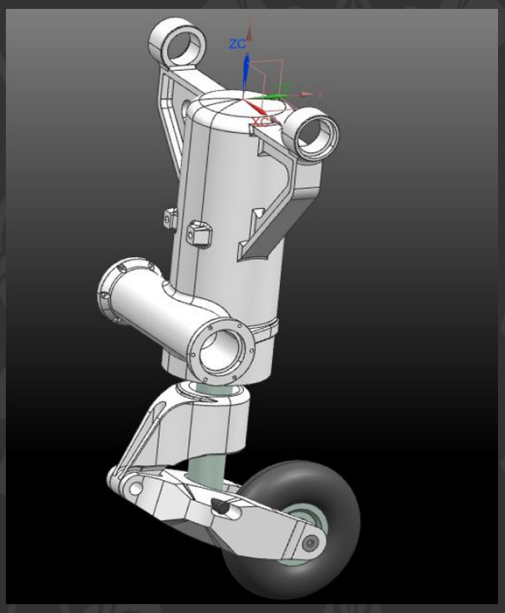

3. ***Determination of Interlaminar Structural Failure*** using Failure Criteria (Tsai-Wu, Hill or Tsai-Hill).
Software used : ***MSc Nastran and MSc Patran***

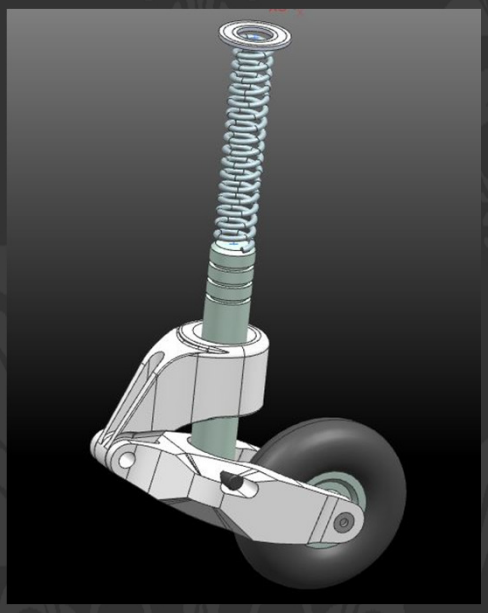
***Porche 918 Composite Body***

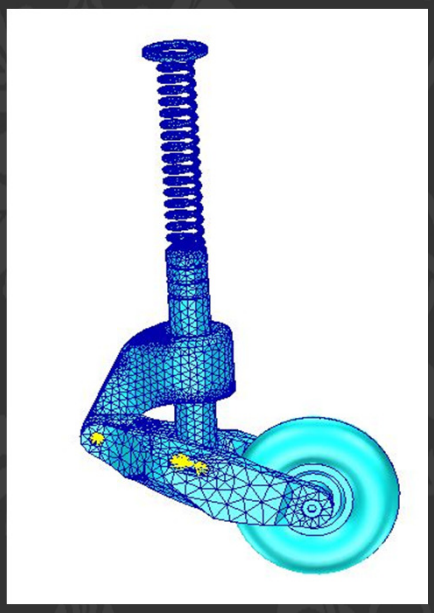
***BMW i Composite Body***

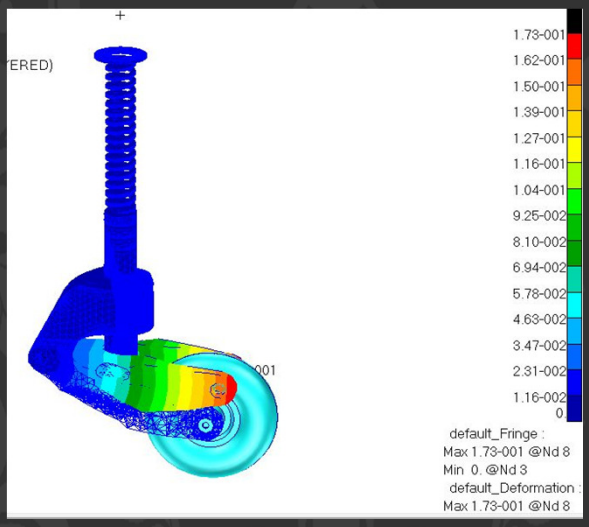
***BMW i Composite door***

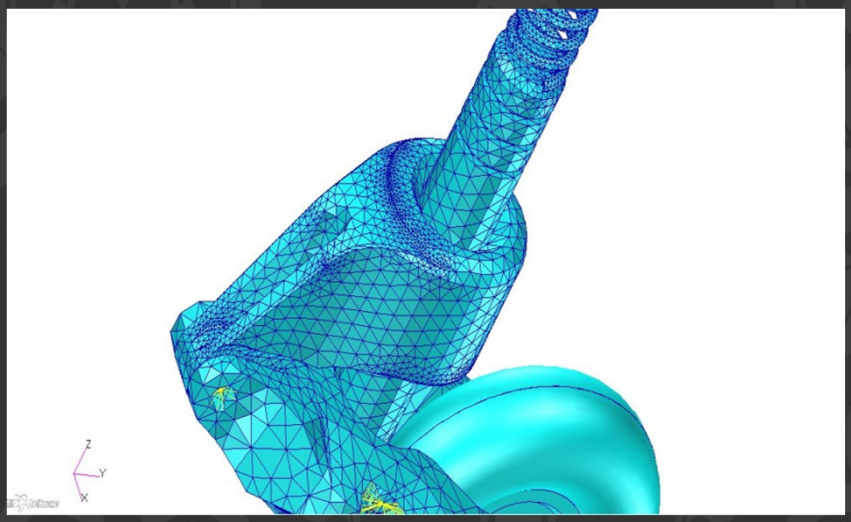
# Customised Projects (Landing Gear)

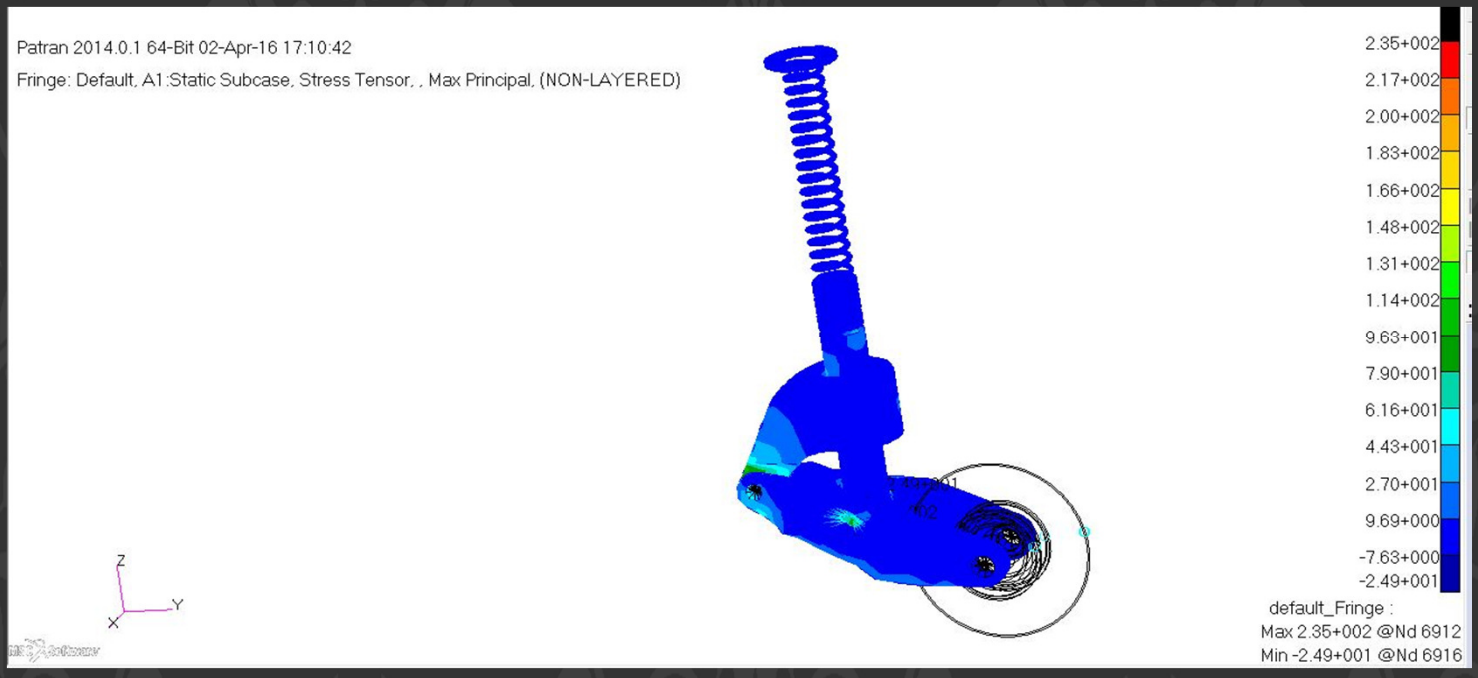




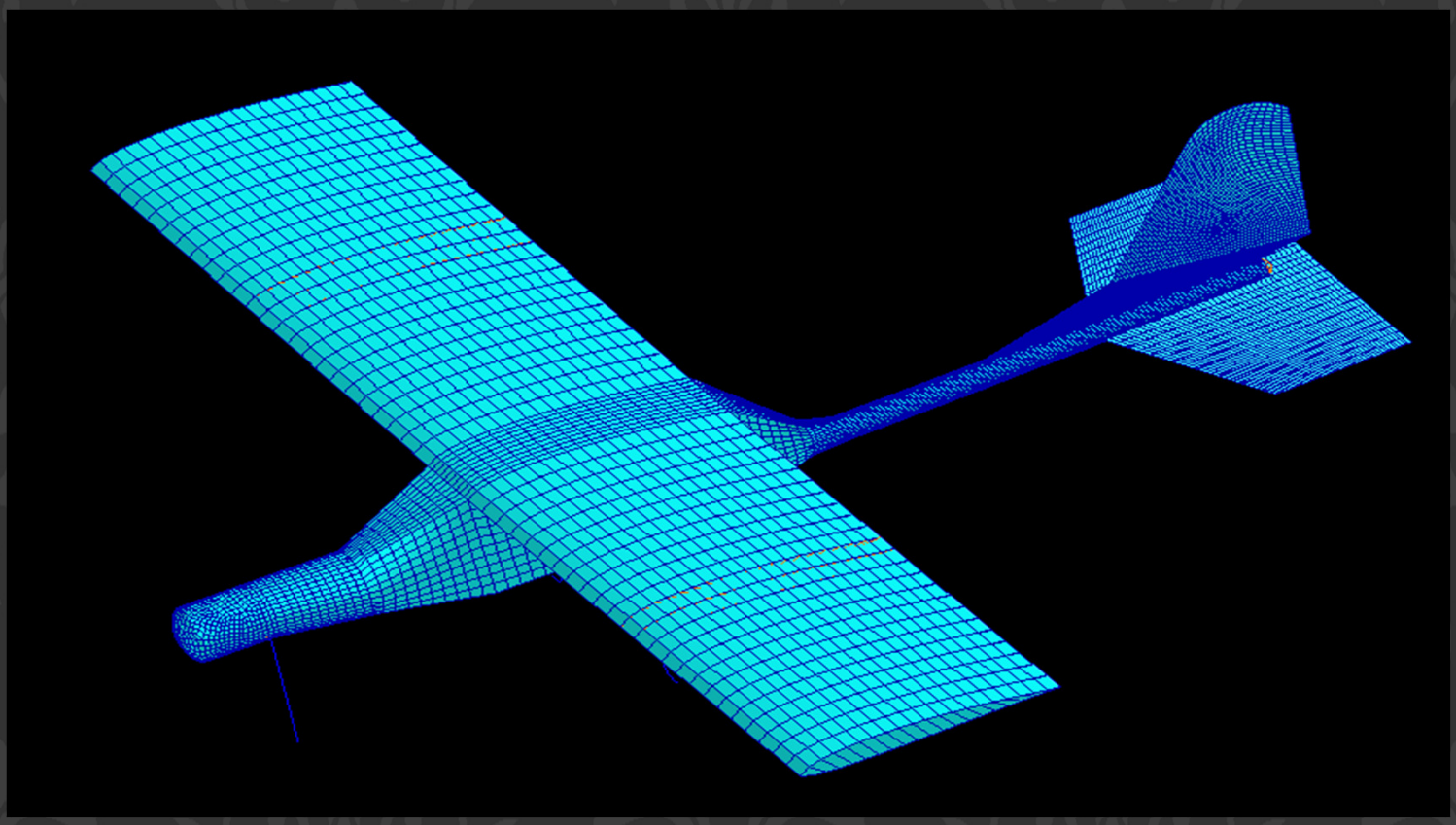


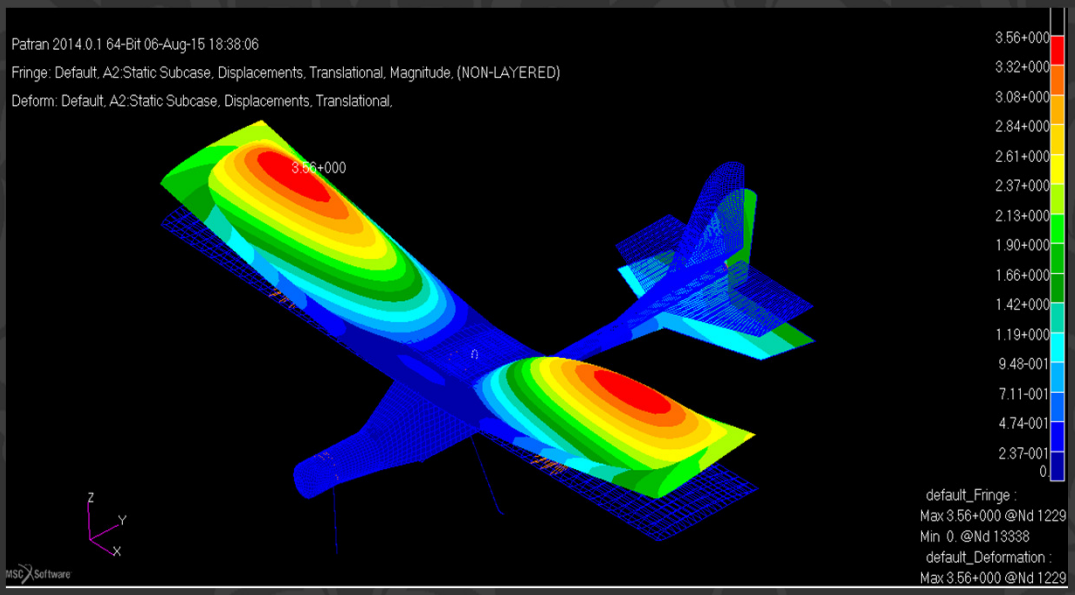


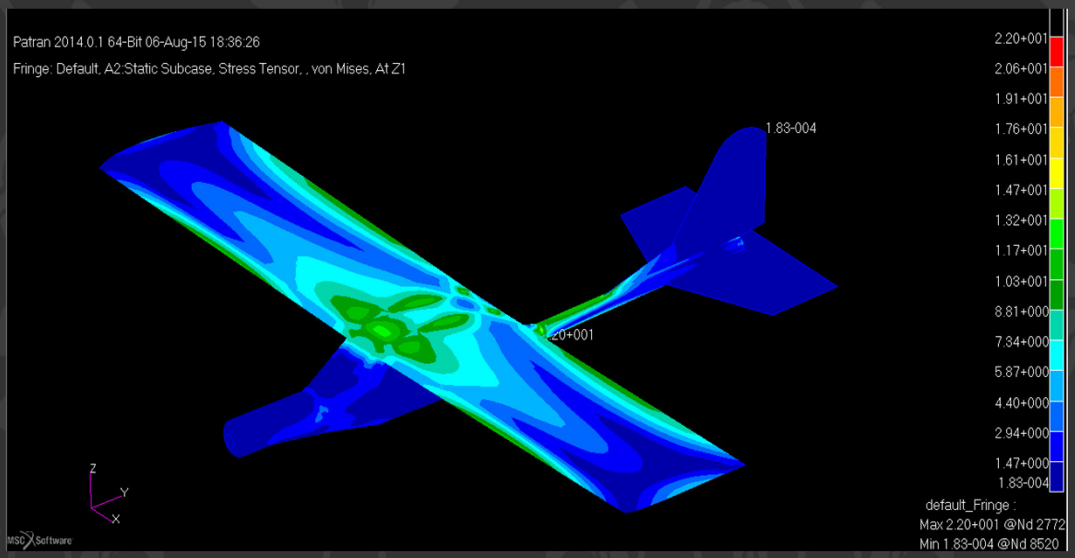


# Customised Projects (UAV AIRCRAFT)



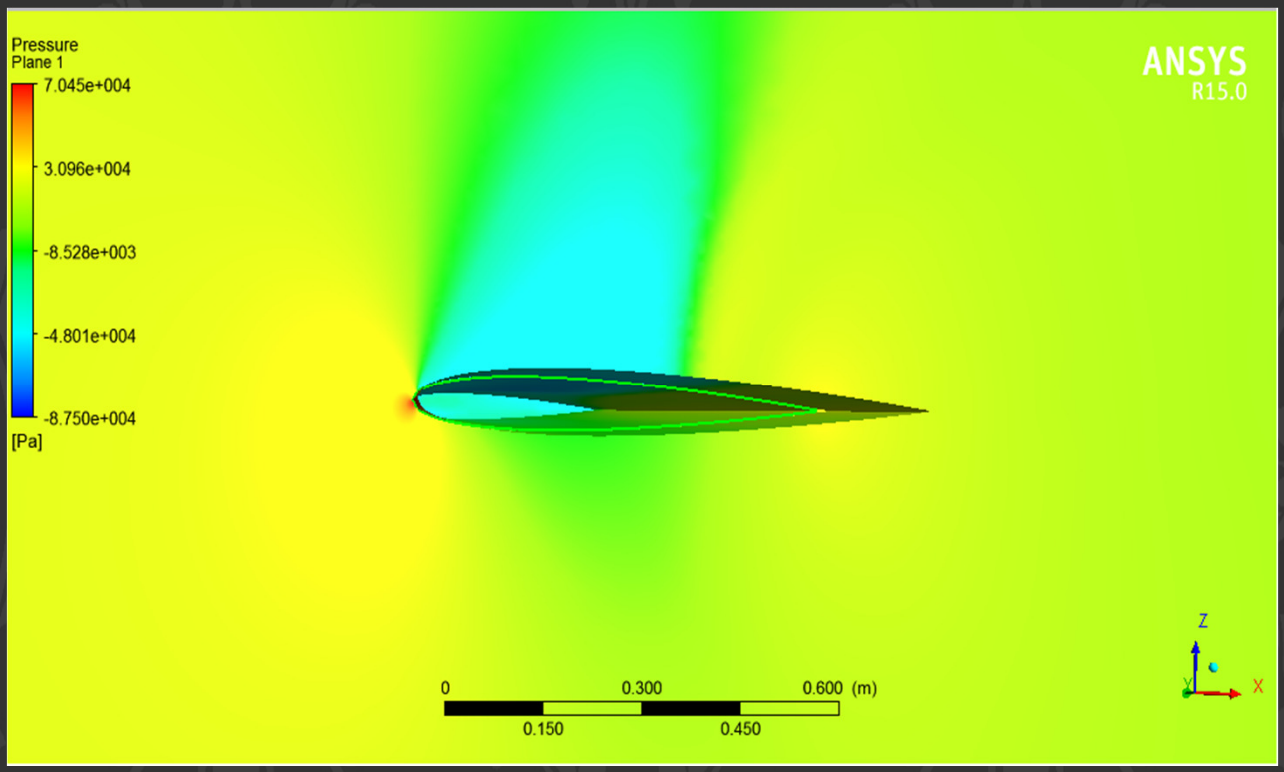



## Displacement Plot MSC NASTRAN

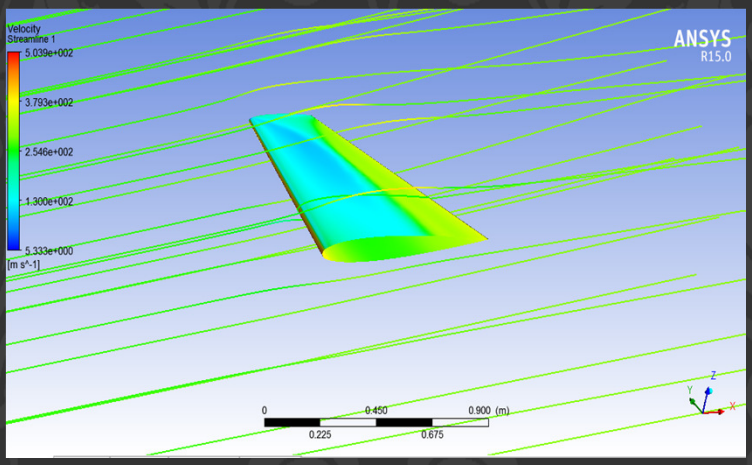


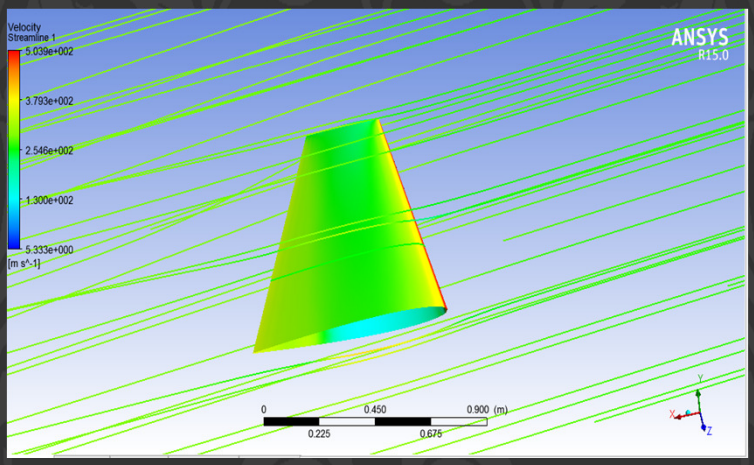

## Stress Plot MSC NASTRAN

# CFD ANALYSIS IN ANSYS ICEM AND CFX

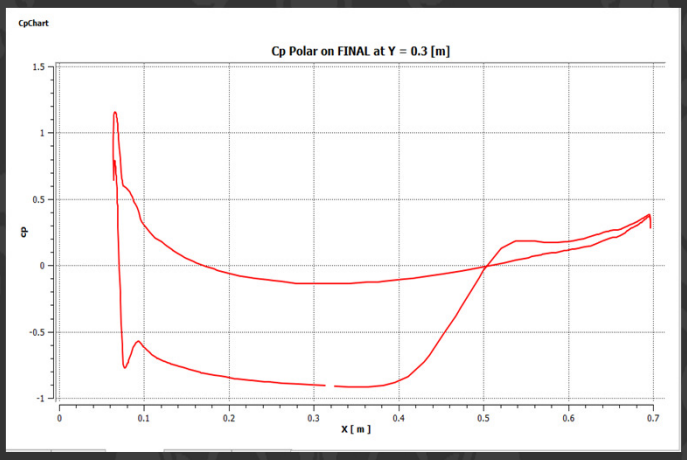



# PRESSURE DISTRIBUTION OVER AN AEROFOIL STRUCTURE



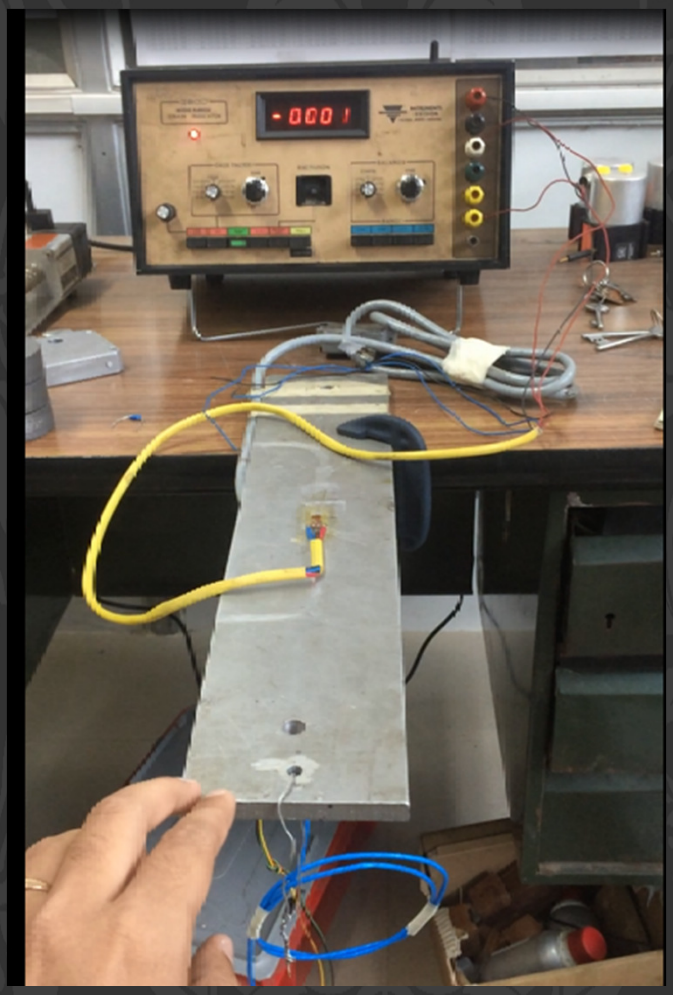



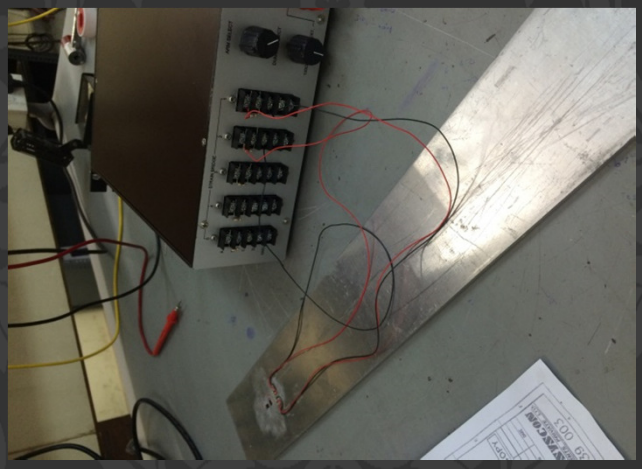

# WING PRESSURE DISTRIBUTION OVER TOP AND BUTTOM SURFACE



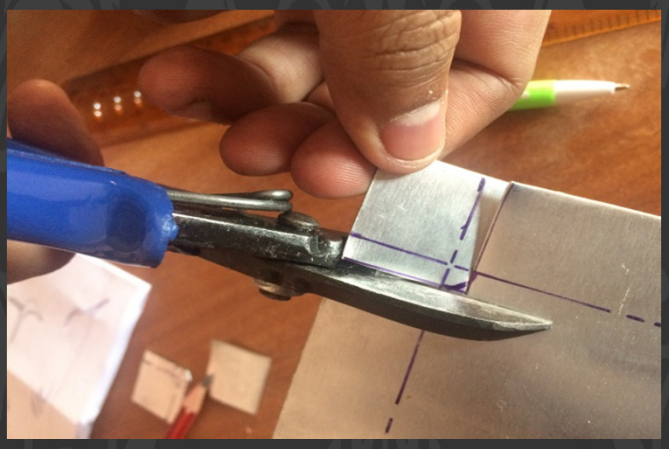
# *Experimental Facilities at DSN*

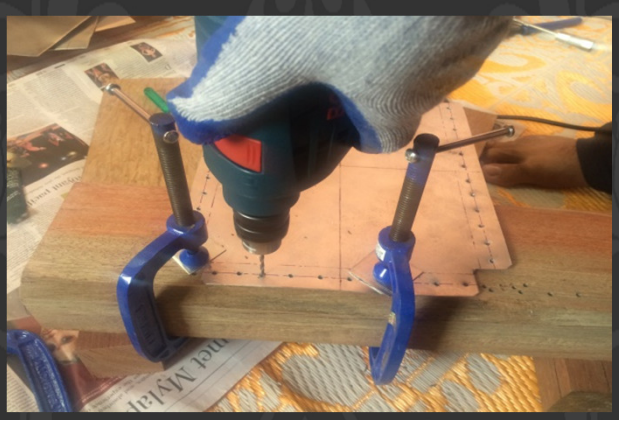
## 1. Cantilever Plate Experiment with linear strain guages



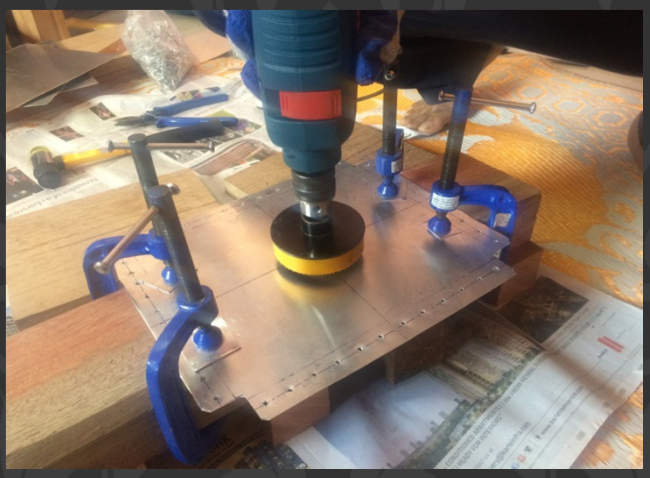


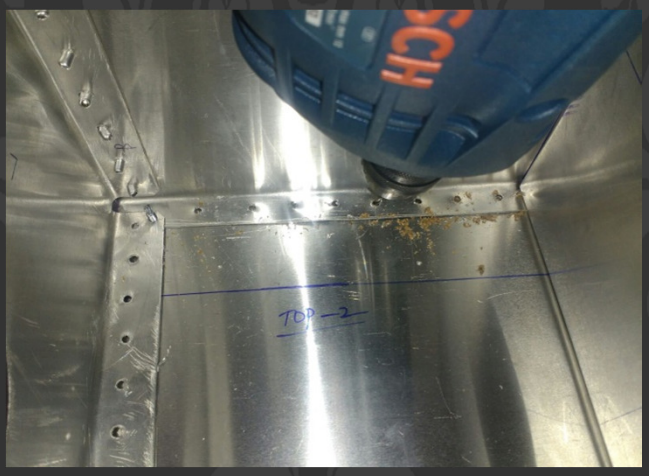
## 2. Constructing the wing inter-spar box structure





# Constructing the wing inter-spar box structure……..






# *Training programme and projects offered to Engineers in Institutions with Mechanical and Aeronautical backgroun*

1. Detail design of ***Launch Vehicle structure***. Understanding the concepts of Stage integration of Rocket Structure.
2. ***Introduction to Theoretical concepts of Wing and Fuselage design*** following standard text book like: Analysis and Design of Flight Vehicle Structure by **Bruhn**, Airframe Stress analysis and sizing by **Michael C Y Niu.**
3. ***Sizing of Wing Structure*** of an Aircraft with Hand Calculation and FEM analytical validation of the same using MSc software.
4. ***Sizing of Empennage Structure*** of an Aircraft with Hand Calculation and FEM analytical validation of the same using MSc software.
5. ***Sizing of Fuselage Structure*** of an Aircraft with Hand Calculation and FEM analytical validation of the same using MSc software.
6. ***3D modeling*** of mechanical engineering components pertaining to Launch Vehicles and Aircrafts using NX 8.5 software.
7. ***2D drawing*** of mechanical engineering components pertaining to Launch Vehicles and Aircrafts using NX 8.5 software.
8. ***Design and analysis of composite structures***, like composite rocket tanks, composite wing, composite fuselage etc. using MSc Software.
9. Experimental analysis of Aircraft Wing and Empennage structure.

10. ***Life estimation of Aircraft and Launch vehicle structural parts*** (with Hand calculation and using FEM MSc Fatigue software) using stress life (S-N) method and strain life (E-N) method.
11. ***Introduction to Fracture mechanics concepts***. Study of crack propagation life of 2D and 3D structural components with hand calculation and using MSc Fatigue software.
12. ***Introduction to Aerodynamics and its application*** following standard text books like: Introduction to Aerodynamics of Flight by Theodore A Talay, NASA SP-367.
13. Introduction to the analysis of ***Non Linear Engineering structure*** using MSc Software. Solving example problem pertaining to non linear structure.
14. ***Study of buckling of metallic and non metallic structure***. Analytical validation of the same using MSc Software.
15. Introduction to the Theoretical ***Concepts of Inertia Relief of Airborne structure***. Application of inertia relief to Airborne structure using MSc software.
16. ***Solving text book (Bruhn) problems*** theoretically with hand calculation and analytical validation of the same using MSc software.
17. ***Theoretical and analytical approach towards estimation of normal modes of vibration*** of mechanical engineering structure.

## COURSE FEE STRUCTURE

1. Post Graduation in Aerospace Engineering is jointly offered by MSME Tool room Kolkata and DSN Aerospace.
2. Monthly consolidated sripend of Rs 5000 will be given for one year.
3. Total course fee is Rs 140000 for two semester (One year) program.
4. Hostel accommodation will be provided at an additional cost.
5. Full placement assistance will be provided by us.
6. The course will be conducted on full time basis.
7. Candidates have to appear for exams to be conducted at the end of each semester.
8. On job, one year, work experience certificate will be provided by MSME Tool room Kolkata.
9. In addition to training, candidates have to work in various projects as assigned by MSME Tool Room Kolkata.
10. All faculties are from IIT's , IISC and Ex- ISRO scientists.
11. Admission starts in Jan 2017 and will be purely on merit basis.
12. Maximum intake is limited to 100 students.


**DSN AEROSPACE CONSULTANTS PVT. LTD.**

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